IN THE CLAIMS:

1. (currently amended) A contact potential difference battery, comprising:

at least two materials having different work functions and electrically coupled to form a circuit to provide current to an electronic load;

a radiation source; and

a gas disposed between the at least two materials, the radiation source emitting a radiation causing ionization of the gas and the at least two materials electrically coupled, the radiation source and the gas operating as means for creating ions which strike the at least two materials to cause flow of current in the circuit as a battery to power an electronic load, the circuit not including, nor operating as, a voltage bias source.

2. (original) The contact potential difference battery as defined in Claim 1 wherein the radiation source comprises a β emitter.

3. (original) The contact potential difference battery as defined in Claim 2 wherein the β emitter comprises Americium.

4. (original) The contact potential difference battery as defined in Claim 1 wherein the at least two materials are selected from the group consisting of metals and highly doped semiconductors.

5. (original) The contact potential difference battery as defined in Claim 1 wherein the gas is selected from the group consisting of nitrogen and inert noble gases.

6. (original) The contact potential difference battery as defined in Claim 1 further including additional ones of the contact potential difference battery coupled in series, thereby multiplying output current.

7. (original) The contact potential difference battery as defined in Claim 1 further including a coupled microelectronic circuit.

8. (currently amended) The contact potential difference battery as defined in Claim 1 wherein the gas can be changed to higher pressure [is present at high pressure], thereby providing increased current output in proportion to increases in pressure.

9. (currently amended) A method of providing continuous, long term current to an electronic load, comprising the steps of:

providing an ionizable gas;

providing at least two electrically coupled separated metals to form a capacitive circuit with the metals having the ionizable gas disposed therebetween;

applying ionizing radiation to form positive and negative ions from the ionizable gas; and

the positive and negative ions each, respectively, striking one of the two different metals to cause a flow of current in the capacitive circuit including the electrically coupled different metals to power an electronic load with the capacitive circuit not coupled to a voltage source, the capacitive circuit thereby providing a continuous, long term current to the electronic load.

10. (original) The method as defined in Claim 9 wherein the ionizing radiation is provided from a source disposed adjacent the two different metals within a range effective to cause ionization.

11. (original) A method of providing continuous, long term electrical power to a microelectronic circuit, comprising the steps of:

coupling a contact potential difference battery to a microelectric circuit; and

activating a radiation source to cause current output from the contact potential difference battery to the microelectronic circuit.

12. (original) The method as defined in Claim 11 wherein the contact potential difference battery comprises a plurality of individual ones of the contact potential difference battery coupled in series to multiply current output.